

## PICTURE OF THE MONTH

### A Rapidly Developing Storm

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A rapidly developing system is characterized by an increase of middle and high frontal clouds. The initial stage of development of a storm along a front is signaled by a broadening of the frontal cloud band. This increase in clouds produces a convex bulge along the cold air side

of the front. This stage is soon followed by rapid development and deepening.

An example of this initial stage of development appears in this ESSA-8 photograph (fig. 1). The accompanying 1500 GMT surface analysis (fig. 2) shows, in general, troughs

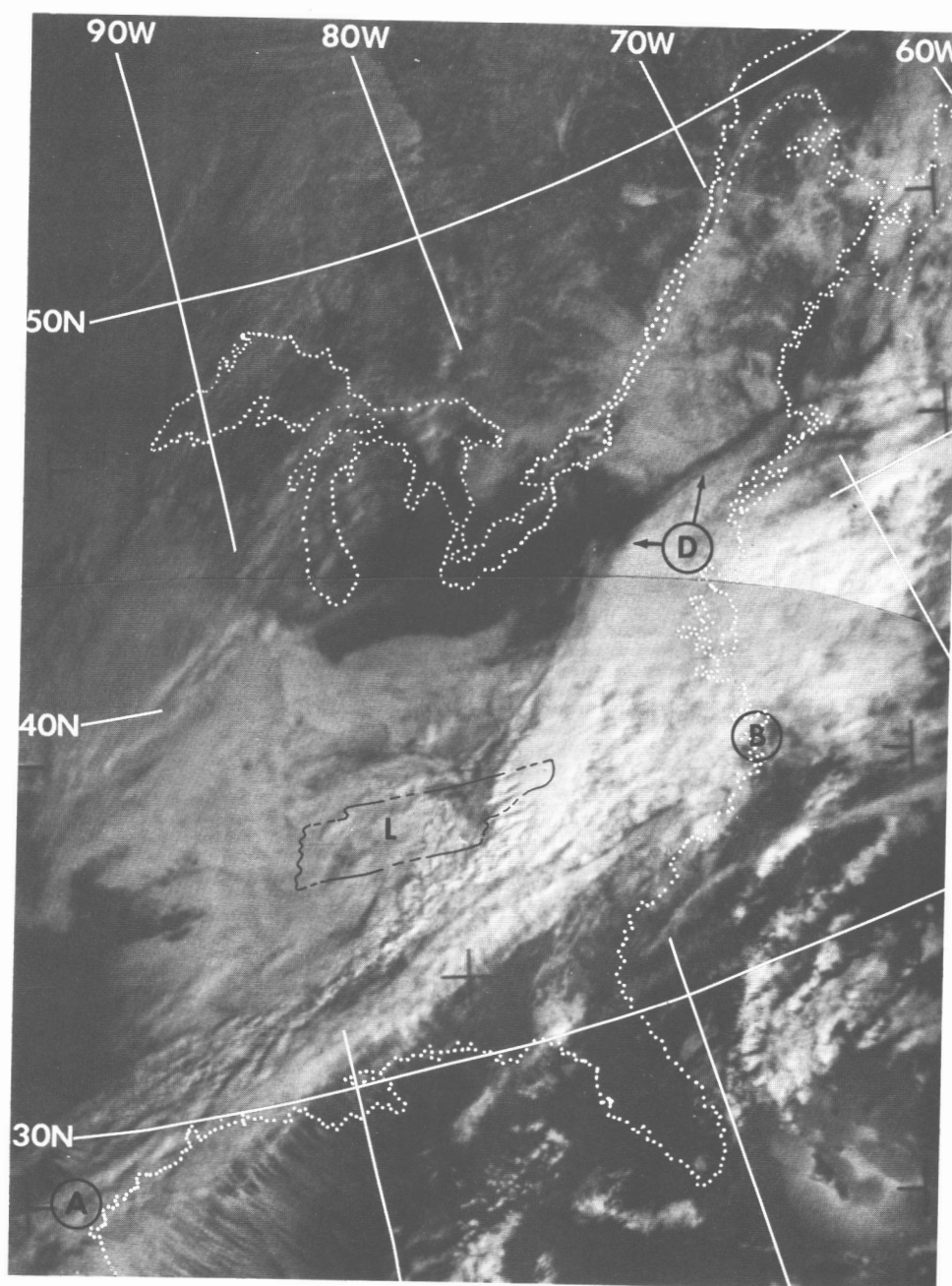


FIGURE 1.—ESSA-8 photograph, Pass 614, 1507 GMT, Feb. 2, 1969.

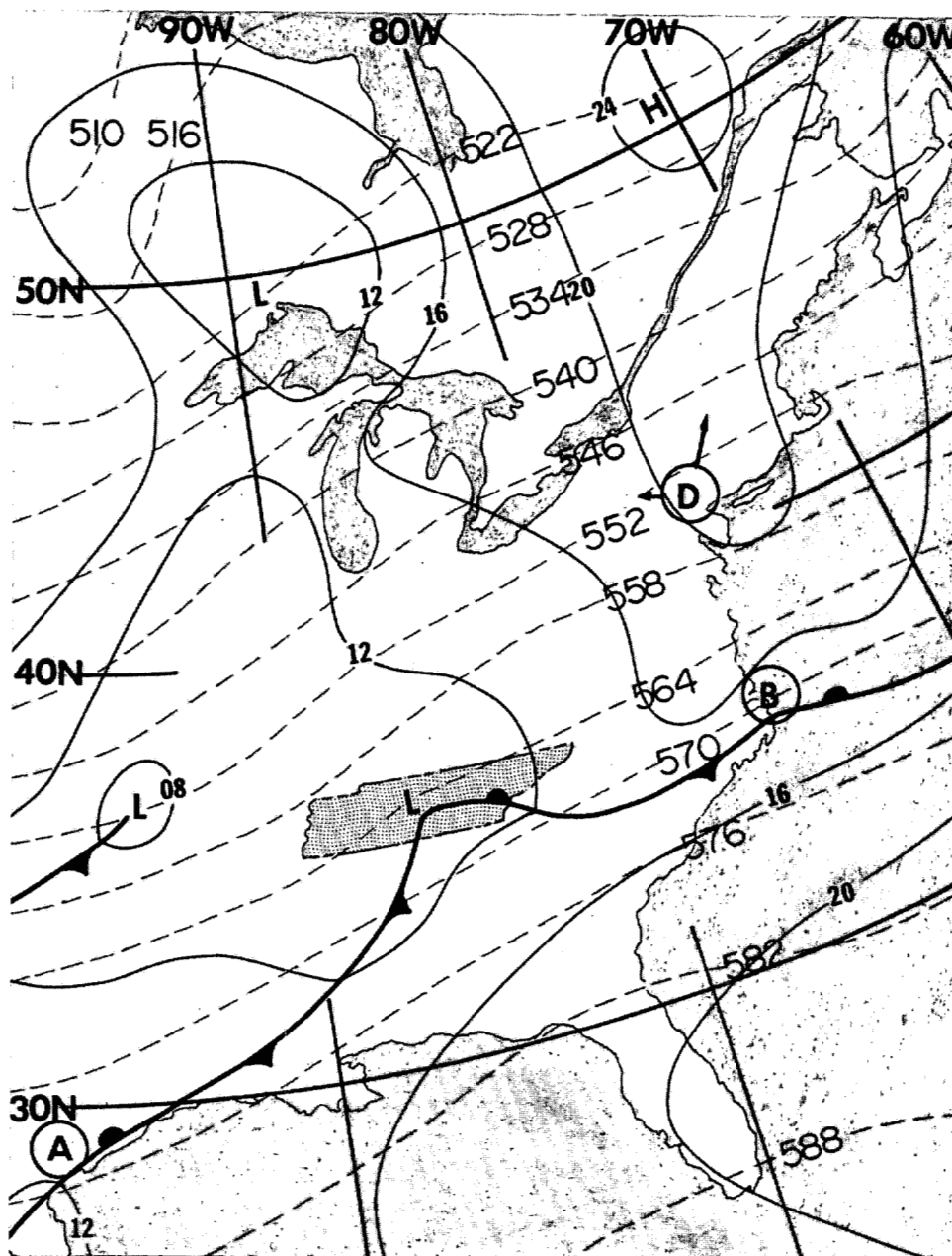


FIGURE 2.—Surface analysis, 1500 GMT (solid lines), and 500-mb analysis (dash lines), 1200 GMT, Feb. 2, 1969.

through a wide area from the Great Lakes to the Gulf of Mexico. Within this area, three surface low-pressure areas were analyzed. A rapidly moving upper level trough which initiated the frontal wave development was analyzed, at 1200 GMT, west of Tennessee.

In the satellite photograph, a frontal band stretches from the Gulf of Mexico (A) northeastward through Tennessee and eastward off the North Carolina coast (B). A marked broadening and increase in middle and high clouds along the cold air side of the front indicates that development is taking place. At this latitude, the low sun angle produces a very wide and distinct shadow (D) along the northern edge of the increased cloudiness.

An area of increased vertical motion located ahead of the vorticity maximum is reflected in the brighter clouds in eastern Tennessee. This "lumpy" appearance is also due to the sun highlighting the altostratus clouds which, in turn, cast shadows on the lower fog and stratus layer to the west. Surface reports indicate light and moderate rain in this area. A 6-hr accumulation of 0.68 in. was reported at Chattanooga just southeast of (L).

By 0000 GMT, February 3, the surface pressures were dropping rapidly. By 0600 GMT, the development of a major Low was apparent in the surface data. The subsequent satellite pictures showed a well-defined vortex over northern Ohio.